

CLAIM

1. A vacuum processing apparatus for applying a predetermined process to an object (W) to be processed  
5 which is placed on a substantially circular placement stage (3) provided in a vacuum chamber (2) by supplying a process gas to the vacuum chamber (2),

characterized in that:

said vacuum chamber (2) has a substantially  
10 circular exhaust port (9) under said placement stage (3), the exhaust port having a diameter equal to or smaller than a diameter of said placement stage (3); and

a center axis (C1) of said exhaust port (9) is displaced from a center axis (C2) of said placement stage  
15 (3).

2. The vacuum processing apparatus as claimed in claim 1, characterized in that::

a support part (6) is provided so as to support  
20 said placement stage (3) by extending from a side wall (63) of said vacuum chamber (2) toward the center of said vacuum chamber (2); and

a direction of displacement of the center axis (C1) of said exhaust port (9) with respect to the center  
25 axis (C2) of said placement stage (3) is a direction opposite to an extending direction of said support part (6).

3. The vacuum processing apparatus as claimed  
30 in claim 2, characterized in that said support part (6) has a hollow structure, and a utility supply line is provided therein.

4. The vacuum processing apparatus as claimed in claim 3, characterized in that said utility supply line includes at least one of a gas supply line (52), a cooling medium supply line (65) and a power supply line (43, 44).

5

5. The vacuum processing apparatus as claimed in claim 3, characterized in that said support part (6) is detachably attached to said vacuum chamber (2).

10 6. The vacuum processing apparatus as claimed in one of claims 1 to 5, characterized in that a baffle plate (20) is provided so as to surround said placement stage (3).

15 7. The vacuum processing apparatus as claimed in claim 6, characterized in that said baffle plate (20) has many apertures (20a), and an open area ratio on a side to which said exhaust port (9) is displaced is smaller than an open area ratio on the opposite side.

20 8. The vacuum processing apparatus as claimed in one of claims 1 to 5, characterized in that a displacement (D) of the center axis (C1) of said exhaust port (9) with respect to the center axis (C2) of said placement stage (3) is equal to or smaller than one eleventh of a diameter of said exhaust port (9).

25 9. The vacuum processing apparatus as claimed in one of claims 1 to 5, characterized in that said exhaust port (9) is connected to a vacuum pump (91) having a capacity to maintain said vacuum chamber (2) at a pressure less than 10 Pa.

10. The vacuum processing apparatus as claimed in claim 9, characterized in that said vacuum pump is a turbo-molecular pump (91).

5 11. The vacuum processing apparatus as claimed in one of claims 1 to 5, characterized in that a gas supply part (8) constituting a substantially circular showerhead is provided in said vacuum chamber (2), and a center axis of said showerhead is coincident with the  
10 center axis (C2) of said placement stage (3).

12. The vacuum processing apparatus as claimed in claim 11, characterized in that said placement stage (3) and said gas supply part (8) are configured to apply a  
15 film deposition process to said object (W) to be processed.

13. The vacuum processing apparatus as claimed in one of claims 1 to 5, characterized in that an upper electrode (8) and a lower electrode (41) are provided so  
20 as to face to each other, wherein plasma of a process gas is generated between said upper electrode (8) and said lower electrode (41) so as to apply a film deposition process to said object (W) to be processed by the generated plasma.

25

14. A vacuum processing method for applying a predetermined process to an object (W) to be processed in a vacuum chamber (2), the vacuum processing method comprising:

30 placing said object (W) to be processed at a position above an exhaust port (9) of said vacuum chamber (2), a center of said object (W) being horizontally displaced from a center of said exhaust port (9) by a

predetermined distance; and

supplying a process gas to said object (W) to be  
processed from a side opposite to said exhaust port (9)  
with respect to said object (W) to be processed and  
5 exhausting the process gas through said exhaust port (9)  
so as to apply said predetermined process.

15. The vacuum processing method as claimed in  
claim 14, characterized in that said predetermined process  
10 is a film deposition process.

15

20

25

30